

# **Preliminary Aerial Imagery Summary Specifications**

## **LiDAR DTM:**

After LiDAR acquisition and post processing 95% of all well-defined points will be within 30 centimeters or approximately (0.98') and 65% of all points to be within fifteen centimeters (15cm) or approximately one-half foot (0.5') or 15cm Root Mean Square (RMS) as defined by NSSDA when compared to "hard point" control vertically. The final results may be better than the above stated accuracy. Approximately 1 point per square meter is used for the development of the final DEM. The actual number of raw points is about 3 to 4 times higher.

## **2 Foot Elevation Contours:**

To generate accurate contours at a 2 foot interval the LiDAR DEM points will be enhanced with photogrammetrically compiled breaklines. Breaklines are defined as ridgelines, major hydrographic features, road centerlines, etc. The LiDAR data points together with the breaklines will form a TIN (Triangular Irregular Network) from which the contours are generated. Contours will meet the ASPRS elevation accuracy, which means that topographic feature points will have a Limiting RMSE of 0.67 feet. (RMSE is defined to be the square root of the average of the squared discrepancies).

## **Digital Ortho Photos with 4 inch GSD:**

True natural color digital ortho photos with 4 inch ground pixel size. The orthos will meet the ASPRS map accuracy standards for 1"=100' (1:1200) map scale resulting in a Limiting RMSE of 1.0 foot. (RMSE is defined to be the square root of the average of the squared discrepancies). The digital orthos will be generated from a digital "frame based" sensor form type Z/I - DMC. Exposures will have a forward overlap of 60% and an approximately 30% side overlap for direct display of photogrammetric stereo models which can be use for other applications. The photogrammetric models will be use to review and QA/QC the LiDAR data and collect the breaklines.

## **Oblique Imagery:**

Images procured with a 6-megapixel camera (2,000 x 3,000):

1. 4175 Sectors of Community 2-Way Images covering 4175 square miles of the County as indicated on County Sector Map). Each Sector will have 6 Oblique Images collected, 3 each from two perpendicular directions over that Sector where elevation conditions permit.
2. 2437 Sectors of Neighborhood 4-Way Images covering the portion of the County as designated on County Sector Map. Variances in the number of Images per Sector might occur due to restricted airspace, elevation changes, temporary mechanical failure and environmental occurrences. Over the course of the project it is expected that the average number of Images will be approximately 108 Images per Sector and that all efforts will be made to meet/exceed this standard.
3. 603 Sectors of Neighborhood 2-Way Images as designated County Sector Map. Variances in the number of Images per Sector and Sectors Imaged might occur due to restricted airspace, elevation changes, temporary mechanical failure and environmental occurrences. Over the course of the project it is expected that the average number of Images will be approximately 54 Images per Sector and that all efforts will be made to meet/exceed this standard. Due to airspace restrictions and pilot safety concerns 603 sectors will have only 2-way images.
4. Contractor will deliver shape files representing the oblique footprint of each image trapezoid in California State Plane Coordinate System, Zone V, NAD 83, and U.S. Survey Feet.

## **QC/QA and Distribution:**

QC/QA will be provided by an independent photogrammetric firm to assure that the entire technical specifications will be satisfied by the aerial imagery firms. This firm will use around 300 control points to provide QA/QC. The firm will also be responsible for distribution of all imagery products to members of the LAR-IAC.